



Peptidodisaccharides as oligosaccharide mimetics

Description of Technology: Methods are provided to replace the ether oxygen linkage of oligosaccharides with a peptide link, --NHC(O)--, where the nitrogen atom is linked to the anomeric carbon atom of the sugar. A new family of building blocks for combinational synthesis, peptidodisaccharides, is provided containing the peptide linkage. Synthesis is more facile than with the oxygen-linked carbohydrates; the resulting compounds are expected to be more stable to enzymatic and chemical hydrolysis and to be amenable to automated synthesis.

Patent Listing:

1. **US Patent No. 5,756,712**, Issued May 26, 1998, "Peptidodisaccharides as oligosaccharide mimetics"

<http://patft.uspto.gov/netacgi/nph-Parser?Sect2=PTO1&Sect2=HITOFF&p=1&u=%2Fnetacgi%2FPTO%2Fsearch-bool.html&r=1&f=G&l=50&d=PALL&RefSrch=yes&Query=PN%2F5756712>

Market Potential: Host cell surface oligosaccharides serve as receptor ligands for protein molecules such as enzymes, antibodies and lectins, and they initiate many critical biological reactions. Unfortunately, these receptor ligands also initiate many harmful biological reactions by providing attachment sites for viruses, toxins, bacteria, etc.

Normally in an oligosaccharide, the constituent monosaccharide groups are linked by ether oxygen linkages. This ether oxygen linkage is difficult to construct chemically. Linking methods are specific for each sugar employed. The ether oxygen linking group is susceptible to hydrolysis by glycosyl hydrolases and non-enzymatic chemical hydrolysis. This ease of hydrolysis makes it difficult to use carbohydrate structures as pharmaceuticals. Further, there are no known methods of automated syntheses for complex oxygen ether linked carbohydrates.

In the compounds of the present invention, the ether oxygen linkage is replaced by the peptide link, --NHC(O)-- where the nitrogen atom of the peptide group is linked to the anomeric carbon atom of the sugar.

Benefits:

- Reduces harmful biological reactions
- Initiates critical biological reactions

Applications:

- Biological and chemical reactions

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